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SAPC-6755 ✓

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MEMORANDUM FOR THE RECORD

22 June 1956

SUBJECT: Conversation with Colonel Norman Appold

1. On 19 June pursuant to views expressed by the DDCI, I called Colonel Norman Appold, Chief Power Plant Laboratory, Wright Air Development Center, ARDC, to seek his views on the wisdom of employing immediately the J-57 P-31 engine on all operational missions in place of the J-57 P-37 engine. The reason for requesting his views was that in his report of 8 May 1956 (SAPC-5880) on the P-37 engine and in the course of his discussion of that report, he recommended the use of the P-37 engine until the P-31 engine was thoroughly proven. In my telephone call of 19 June I explained that we have now accumulated approximately five-hundred hours on the P-31 engine and that the first P-31 engine with one-hundred hours flight time had been sent back to Pratt and Whitney for examination. Thus the agreed minimum experience had been obtained on this new engine. Both Mr. C. L. Johnson, the airframe manufacturer and [redacted] of Pratt and Whitney, recommended exclusive use of the P-31 engine for operational missions.

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2. On 21 June Colonel Appold called me to report his views which were based in part on conversations he had had with [redacted] of Pratt and Whitney. He stated that he concurred in the opinion of the airframe and engine manufacturers that the P-31 engine, even though there had been far less experience with it than with the P-37, should be regarded henceforth as probably the more reliable of the two. He accepts as conclusively demonstrated that the P-31 engine has wider operating margins at altitudes and is therefore very much less liable to flameouts. On the other hand, there has not as yet been sufficient experience with the P-31 engine to demonstrate with any conclusiveness that it is less liable to structural failure, although the fact that it operates with a lower exhaust gas temperature may indicate a lower temperature in the first stage of the turbine and consequently less liability to failure at this critical point. Colonel Appold emphasized that of the five-hundred odd hours already accumulated on the P-31 engine, only a portion had been at extreme altitude and considerable further experience would be required before it would be possible to draw solid conclusions as to structural reliability.

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3. Under the circumstances, Colonel Appold's recommendations were as follows:

- a. That the P-31 engine be used in all operational missions.
- b. That pending the accumulation of further experience, to observe limitations currently in effect which require a hot section inspection after every fifty hours of operation and an overhaul after one-hundred hours.
- c. That the present practice be continued of substituting new blades in the first stage of the turbine every hundred hours regardless of the condition of the old blades. This practice to continue until forged blades are available.

4. All of the above is understood to be in accordance with the views of the engine manufacturer and these recommendations will be followed.

SIGNED

RICHARD M. BISSELL, JR.
Project Director

RMB: ☐

- 1-Pro. Dir.
- 2-Dep. Pro. Dir
- 3-Dir of Ops
- 4-Contracting Offr/Dir Materiel
- 5-RMB Chrono
- 6-Project Chrono

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